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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/680,131	10/02/2000	Tiffany D. Boehmer	BPS-103	7429

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EXAMINER

TRAN, QUOC A

ART UNIT	PAPER NUMBER
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2176

DATE MAILED: 06/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/680,131

Applicant(s)

BOEHMER ET AL.

Examiner

Quoc A. Tran

Art Unit

2176

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 11, 18-21 and 31-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11, 18-21 and 31-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. This action is responsive to Amendment, filed 03/27/2006, with original filing date of 10/02/2000.
2. Claims 11, 18-21 and 31-22 are currently pending in this application. Claims 11, 31 40, 44 and 47 are independent claims.

### *Allowable Subject Matter*

3. Claims 31-45 would be allowable if Claims 31, 33-40, 42-43 and 44 rewritten to overcome the rejection under 35 U.S.C. 101 set forth below (see the current rejection for details).

### *Claim Rejections - 35 USC § 101*

4. 35 U.S.C. 101 reads as follows:

*Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.*

5. **Claims 31, 33-40, 42-43 and 44** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims **31, 33-40, 42-43 and 44**, set forth non-functional descriptive material and fail to produce a "useful, tangible and Concrete" result for a "Practical Application"; Claims **31, 33-40, 42-43 and 44**, are interpreted as software per se, abstracts ideas or mental construct and not tangibly embodied on a computer readable medium or hardware (see Amendment to the claims pages 3-9);

(1) “USEFUL RESULT”, For an invention to be “useful” it must satisfy the utility requirement of section 101 see MPEP § 2107 and Fisher, 421 F.3d at \_\_\_, 76 USPQ2d at 1230 (citing the Utility Guidelines with approval for interpretation of “specific” and “substantial”),

(2) “TANGIBLE RESULT”, For an invention to be “useful” it must satisfy the utility requirement of section 101 see MPEP § 2107 and see Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had “no substantial practical application.”). “[A]n application of a law of nature or mathematical formula to a ... process may well be deserving of patent protection.” Diehr, 450 U.S. at 187, 209 USPQ at 8 (emphasis added); see also Corning, 56 U.S. (15 How.) at 268, 14 L.Ed. 683 (“It is for the discovery or invention of some practical method or means of producing a beneficial result or effect, that a patent is granted . . .”) and

(3) “CONCRETE RESULT”, whether the invention produces a “concrete” result. Usually, this question arises when a result cannot be assured. In other words, the process must have a result that can be substantially repeatable or the process must substantially produce the same result again. In re Swartz, 232 F.3d 862, 864, 56 USPQ2d 1703, 1704 (Fed. Cir. 2000)”, Claims 31, 33-40, 42-43 and 44, are interpreted as software per se, abstracts ideas or mental construct and not tangibly embodied on a computer readable medium or hardware.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

***(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the***

*invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

7. **Claims 11, 18-21 and 47-55** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bucci et al. (hereinafter Bucci), US006823315B1 provisional filed 11/3/1999, in view of Turpin, US 5,640,501 patented 6//7/1997 (hereinafter Turpin), further in view of O'Brien US006587831B1 filed 10/21/1999 (hereinafter O'Brien).

**In regard to independent claim 11**, Bucci teaches allowing a user to impose a second order logic constraint on completed rule, wherein the at least one second order logic constraint is assignable to the employee to be scheduled and allowing a user to impose at least one second order logic tolerance on the completed rule in fig. 1, 4, 9, col. 1 line 62 - col. 3 line 45, and col. 9 line 59 - col. 10 line 2. Bucci calls the second order logic constraints preferences and uses the preferences to score and rank a plurality of schedules that otherwise satisfy the basic scheduling logic requirements. The preferences for each employee are stored in the employee objects shown in fig. 9. Bucci does not specifically teach building the rules by displaying to a user a current rule fragment, such rule fragment comprising a blank space, and filling the blank space with a value selected by the user to as to create a completed rule, wherein the selected value comprises a value selected from a displayed list and a value that is entered directly. Turpin does teach a system for displaying to a user a current rule fragment, such rule fragment comprising a blank space, and filling the blank space with a value selected by the user to as to create a completed rule, wherein the selected value comprises a value selected from a displayed list and a

value that is entered directly in fig. 11-12, 15, 20, 22, 28-29, cot. 1 line 66 - col. 2 line 11, col. 2 lines 22-31, col. 2 line 53-33, and cot. 3 line 33- col. 4 line 4.

filling said blank space of the current rule fragment, however Turpin does teach applying branching rules to previous selections of a user for filling blank space, so as to interactively and dynamically create future blank spaces and future lists of potential selections in col. 2 line 53 col. 3 line 3 and also (see Turpin at col. 25, lines 5-15), discloses filling the blank space prior spatial arrangement wherein the conclusions are arranged with spacing to maximize the amount of information displayed, and also (see Turpin in fig. 11-12, 15, 20, 22, 28-29, cot. 1 line 66 - col. 2 line 11, col. 2 lines 22-31, col. 2 line 53-33, and cot. 3 line 33- col. 4 line 4, lines 5-15). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Bucci and Turpin to have created the claimed invention. It would have been obvious and desirable to have used the branching rules as taught by Turpin to have improved the rule creation of Bucci as the purpose of Turpin is to simplify and organize a complex decision process for entering information to describe a policy, such as a rule.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Bucci and Turpin to have created the claimed invention. It would have been obvious and desirable to have used the form interface as taught by Turpin to have enhanced the creation of the rules for use by Bucci as the purpose of Turpin is to simplify and organize a complex decision process for entering information to describe a policy, such as a rule. It would have been obvious and desirable to one of ordinary skill in the art at the time of the invention to have used the second order logic teaching of Bucci to have created the self-referential constraint because this is a variation of the preference second order logic teaching of

Bucci. Rules with self-referential constraints can be created by combining the constraints and employee preferences taught by Bucci.

Bucci and Turpin do not explicitly teach, wherein the current rule fragment is a portion of a completed rule used to generate a schedule for an employee within the call center generating the schedule for the employee within the call center based on the completed rule, however (see O'Brien at col. 2, line 65 through col. 3, line 5), discloses a call center manages the online scheduling system, further (see O'Brien at col. 4, lines 30-40), discloses in section C. Rule Base which defines relationships between business data and employee data. The rule base includes constraints, among others, such as minimal hours between shifts, maximum consecutive shifts of the same type, maximum shifts before a day off, whether double shifts are allowed, whether overtime is allowed and whether permanent employees are preferred over casual employees. The rule base also includes weighted preferences for keeping days off together, days off on weekends, preferred shifts, and requested days off.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified Bucci and Turpin, to include a means of scheduling for the employee wherein the current rule fragment is a portion of a completed rule used to generate a schedule for an employee within the call center generating the schedule for the employee within the call center based on the completed rule of O'Brien teaching. One of the ordinary skills in the art would have been motivated to perform such a modification to provide a word-based search engines, because it would have been obvious and desirable to one of ordinary skill in the art at the time of the invention to have used the Rule Base, which defines relationships between business data and employee data. The rule base includes constraints, among others, such as

Art Unit: 2176

minimal hours between shifts, maximum consecutive shifts of the same type, maximum shifts before a day off, whether double shifts are allowed, whether overtime is allowed and whether permanent employees are preferred over casual employees. The rule base also includes weighted preferences for keeping days off together, days off on weekends, preferred shifts, and requested days off O'Brient to includes a means of using second order logic teaching of Bucci to have created the self-referential constraint because this is a variation of the preference second order logic teaching of Bucci. Rules with self-referential constraints can be created by combining the constraints and employee preferences taught by Bucci.

**Regarding dependent claim 18,** Bucci teaches wherein the completed rule refers to a goal that is unspecified in an absolute sense in fig. 1 and 4, and col. 1 line 62 -- col. 3 line 45. Bucci does provide an optimal scheduling solution, but provides the best of a plurality of created schedules through iterative scoring and ranking. Thus, the goal is unspecified in an absolute sense.

**Regarding dependent claim 19,** Bucci teaches wherein the completed rule refers to a schedule that does not yet exist in fig. 1 and 4, and col. 1 line 62 - col. 3 line 45. Bucci does provide an optimal scheduling solution, but provides the best of a plurality of created schedules through iterative scoring and ranking. Thus, the goal refers to a schedule that does not yet exist. Regarding dependent claim 20, Bucci does not teach applying branching rules to previous selections of a user for filling blank space, so as to interactively and dynamically create future blank spaces and future lists of potential selections. Turpin does teach applying branching rules to previous selections of a user for filling blank space, so as to interactively and dynamically create future blank spaces and future lists of potential selections in col. 2 line 53 col. 3 line 3. It



would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Bucci and Turpin to create the claimed invention. It would have been obvious and desirable to have used the branching rules as taught by Turpin to have improved the rule creation of Bucci as the purpose of Turpin is to simplify and organize a complex decision process for entering information to describe a policy, such as a rule.

**Regarding dependent claim 20,** Bucci does not teach applying branching rules to previous selections of a user for filling blank space, so as to interactively and dynamically create future blank spaces and future lists of potential selections. Turpin does teach applying branching rules to previous selections of a user for filling blank space, so as to interactively and dynamically create future blank spaces and future lists of potential selections in col. 2 line 53 col. 3 line 3. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Bucci and Turpin to have created the claimed invention. It would have been obvious and desirable to have used the branching rules as taught by Turpin to have improved the rule creation of Bucci as the purpose of Turpin is to simplify and organize a complex decision process for entering information to describe a policy, such as a rule.

**Regarding dependent claim 21,** Bucci teaches accessing a dynamic database, so as to populate the lists of potential selections in accordance with the current value in real time of the dynamic database in fig. 1 and 4, the abstract, and col. 1 line 62 - col. 3 line 45.

**Regarding to independent claim 47,** incorporate substantially similar subject matter as cited in claim 51 above, and further view of the following, and is similarly rejected along the same rationale,

Bucci teaches optimizing a schedule for scheduling a plurality of agents and generating an initial schedule according to at least one rule in fig. 1 and 4, and col. 1 line 62-- col. 3 line 45. Bucci teaches accepting a tolerance input by a user, wherein the tolerance is placed on a rule in fig. 1, 4, 9, col. 1 line 62 - col. 3 line 45, and col. 9 line 59 - col. 10 line 2. Bucci teaches at least one self-referential constraint imposed on the completed rule, wherein the at least one self-referential constraint is assignable to an agent to be scheduled and at least one self-referential tolerance imposed on the completed rule in fig. 9 and col. 9 line 59 - col. 10 line 2. Bucci teaches converting a completed rule into an internal representation suitable for input into a resource scheduling system in fig. 1 and 4, and col. 1 line 62 - col. 3 line 45, Bucci teaches removing a shift from the initial schedule, thereby creating a shift-reduced schedule, wherein the shift comprises at least one agent, at least one time slot, and at least one break offset value, wherein the schedule comprises a plurality of shifts assigning the agents to the time slots and to break offset values in fig. 4, 7-8, and col. 8 line 55 - col. 9 line 51. Bucci teaches creating a plurality of possible schedules, including adding an array of different possible shifts individually to the shift-reduced schedule, wherein the possible shifts are break-unspecified shifts and have indeterminate break times in fig. 4, 7-8, and col. 2 line 16 - col. 3 line 45. Bucci teaches evaluating a score function for each of the plurality of possible schedules, wherein the possible schedules have different possible shifts added, wherein the different possible shifts comprise all time slots in the schedule for which the agent can work, selecting an improved schedule from among the plurality of possible schedules, wherein the improved schedule is characterized by an improved value of the score function, and scheduling the agents in accordance with the improved schedule in fig. 1 and 4, the abstract, and col. 1 line 62 - col. 3 line 45.

Bucci does not teach displaying a current rule fragment, accepting user input to create a completed rule from the rule fragment, wherein user input includes a selection from a displayed list, and a value directly entered by the user, or applying branching rules to previous user selections, such that future selection lists may be generated based on the previous user selections. Turpin teaches displaying a current rule fragment, accepting user input to create a completed rule from the rule fragment, wherein user input includes a selection from a displayed list, and a value directly entered by the user, and applying branching rules to previous user selections, such that future selection lists may be generated based on the previous user selections in fig. 11-12, 15, 20, 22, 28-29, col. 1 line 66 - col. 2 line 11, col. 2 lines 22-31, col. 2 line 53-33, and col. 3 line 33 col. 4 line 4. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have combined Bucci and Turpin to have created the claimed invention. It would have been obvious and desirable to have used the form interface as taught by Turpin to have enhanced the creation of the rules for use by Bucci as the purpose of Turpin is to simplify and organize a complex decision process for entering information to describe a policy, such as a rule.

**Regarding dependent claim 48,** Bucci teaches wherein generating an initial schedule according to at least one rule further comprises accessing a dynamic database to populate the displayed lists depending on current values in the dynamic database in fig. 1 and 4, the abstract, and col. 1 line 62 -col. 3 line 45.

**Regarding dependent claim 49,** Bucci teaches assigning a completed rule to at least one agent of the plurality of agents in fig. 1, 4, and 9, the abstract, and col. 1 line 62 - col. 3 line 45.

**Regarding dependent claim 50,** Bucci teaches repeatedly removing adding, evaluating, and selecting until a locally optimal schedule is obtained in fig. 1, 4, and 9, the abstract, and col. 1 line 62 - col. 3 line 45.

**Regarding dependent claim 51,** Bucci teaches generating at least one break unspecified shift, including un-scheduling at least one break to make the breaks indeterminate and creating a plurality of possible break times for each break-unspecified shift, including adding an array of different possible break offset values in fig. 1, 4, and 9, the abstract, and col. 1 line 62 col. 3 line 45. Bucci teaches for each break-unspecified shift, evaluating a score function for each of the plurality of possible break times and selecting a schedule having improved break times from the possible schedules having possible break times, wherein the improved break times are characterized by improved scores in fig. 1, 4, and 9, the abstract, col. 1 line 62 - col. 3 line 45, and col. 8 lines 44-53.

**Regarding dependent claim 52,** Bucci teaches wherein the evaluation of the score function for a possible schedule includes the calculation of a stochastic factor in fig. 1, 4, and 9, the abstract, and col. 1 line 62 - col. 3 line 45.

**Regarding dependent claim 53,** Bucci teaches wherein the evaluation of the score function for a possible schedule includes selecting one of a plurality of predetermined values corresponding to distinct staffing levels for an interval in the possible schedule in fig. 1, 4, and 9, the abstract, and col. 1 line 62 - col. 3 line 45.

**Regarding dependent claim 54,** Bucci teaches optimizing a schedule for scheduling a plurality of agents in fig. 1, 4, and 9, the abstract, and col. 1 line 62 - col. 3 line 45. Bucci does not specifically teach wherein the plurality of predetermined values comprises four values

Art Unit: 2176

corresponding to whether the interval in the possible schedule is very understaffed, slightly understaffed, slightly overstaffed, or very overstaffed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the predetermined values to have corresponded to specific categories to have made the predetermined values more understandable to the users.

**Regarding dependent claim 55**, Buccì teaches wherein the different possible shifts further comprise a subset of the at least one agent and all time slots in the schedule for which the subset of agents can work in fig. 1, 4, and 9, the abstract, and col. 1 line 62 - col. 3 line 45.

***Response to Argument***

8. In response to applicant's arguments filed on pages 13-15, for claims 11, and 18-21; pages 18-22, for claims 47-55 have been fully considered but they are not persuasive. Applicant's arguments in pages 13-15, for claims 11, and 18-21; pages 18-22, for claims 47-55 that Buccì and Turpin do not teach or suggest all of the limitations of independent claim 11, the Examiner respectfully disagrees. The Examiner believes Buccì does teach a self-referential rule assignable to an individual to be scheduled. For example, Buccì shows in this in fig. 1, 9, and col. 9 line 63- - col. 10 line 2. Buccì states that from the scheduler's point of view, each employee has his own individual constraints and preferences. Thus, these rules are self-referential in determining the bounds of the schedule for the individual employee.

Further more to address the amended portion of claims 11, 18-21 and 47-55; the Examiner introduces the O'Brien reference (see rejection above for detail).

Art Unit: 2176

Therefore, the Examiner maintains that the teachings of Bucci and Turpin in combination teach or suggest all the unamended limitations of independent claims 11, 47 and their dependencies claims 18-21 and 48-55 for at least the reason set forth above at this time.

*Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Michelman                      US005987481A                      issued                      11-1999

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc A. Tran whose telephone number is (571) 272-4103. The examiner can normally be reached on Monday through Friday from 9 AM to 5 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Herndon R. Heather can be reached on (571) -272-4136. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Quoc A. Tran  
Patent Examiner  
Technology Center 2176  
June 9, 2006

*William L. Bashore*  
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**PRIMARY EXAMINER**